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## EDITORIAL NOTES.

PROF. W. W. BAILEY reports *Galinsoga parviflora* from Providence, R. I.

DR. J. SIGMUND POETSCH, lichenologist, died at Randegg, in April last.

WE notice by the *Torrey Bulletin* that Prof. W. J. Beal is preparing an illustrated work on grasses.

THE *Deutsche Botanische Monatschrift* is an excellent journal of local botany published at Sondershausen, Germany, by Dr. Leimbach.

THE geological survey of Minnesota is printing a catalogue of the flowering plants and ferns of that State, giving their distribution, etc.

DR. J. D. COX has come to the conclusion in his study of diatom shells, as we learn from the *Amer. Mo. Micr. Journal*, that the areolæ are cavities inside the wall of the shell, while the ribs are thickening upon the surface.

MISS M. B. FLINT, writes from Dutchess county, N. Y.: "*Galium verum* has recently appeared in the town of Stanford. I can trace its introduction to no cause. As Gray (Manual) restricts it to E. Mass., the mention of this station may be of interest."

THE PRESENT SEASON has been a remarkably good one for botanists in Arizona and Southern California, owing to the unusually heavy and long continued rains. Mr. Pringle, who is at work in Arizona and Sonora, writes that he is making a large and rich collection in that region, an advertisement of which will appear later.

THE NEW PART of the Synoptical Flora of N. America (Vol. I, pt. 2) is published. It comprises Caprifoliaceæ to Compositæ inclusive, 474 pages. It may be ordered of Curator of the Herbarium of Harvard University, Cambridge, Mass. Price, \$5. It will be sent on receipt of this sum to any address in the United States or Canada, postpaid and *registered*.

WE HAVE RECEIVED from the author a copy of a "*List of N. B. Plants*" by Prof. James Fowler, showing that *Scirpus* (*Blysmus*) *rufus*, Schrad., was found in N. B. much earlier than the dates given by Mr. Boott in the June number of the GAZETTE, p. 85. Mr. Fowler's specimens were collected at Eel River, Restigouche county, N. B., August 1, 1873.

THE American Society of Microscopists had an interesting meeting at Rochester during August. Botanical subjects were not prominent. Dr. Dallinger and Prof. Bennett were present as delegates from the Royal Microscopical Society of London, and the latter read a paper on "Fungi found in Sewage Effluents." Prof. H. L. Smith, of Geneva, N. Y., was elected president for the coming year.

PROF. J. C. ARTHUR has been investigating the infectious nature of the pear blight, making numerous experiments at the Agricultural Experiment Station, Geneva, N. Y. Inoculations of healthy twigs, leaves and fruit caused the disease to appear quickly. Detailed results of the experiments are not yet published. A preliminary notice of the work done appears in *Bulletin No. xcvi* dated August 6.

MR. JOSEPH F. JAMES, in the *Journal* of the Cincinnati Society of Natural History, announces that, "while all the genuine *Campanulas* have bell-shaped-drooping, pediceled flowers, the species of *Specularia* have rotate, erect and ses,

sile flowers." From which it would seem that the original Canterbury Bell is no longer a *Campanula*! Mr. James and Mr. Morgan accordingly transfer *Campanula Americana* to *Specularia*. But that species has not erect flowers, while a large number of *Campanulas* have; and botanists know plenty of the latter with flowers as nearly sessile as those of the Venus's Looking-glass, and several with corollas quite as rotate.

BOTANY receives due recognition in the prizes awarded by the French Academy of Sciences. Among the awards for 1883, given in May last, was the Desmazières Prize to MM. Bonnier and Mangin for their memoir on "Respiration and Transpiration of Fungi," and the Bordin Prize to M. Costantin for best treatment of the proposed subject: "Influence of environment on structure of root, stem and leaves; modifications undergone in water by land plants and those by aquatic plants compelled to live in the air; explanation of the special form of some marine plant." The Desmazière Prize for 1884 will be given for "The most useful work on cryptogamous plants," and the De la Fons Melicocq Prize for 1886 for "The best treatise on the flora of North France."

DR. T. L. PHIPSON, of London, gives some results in the *Chemical News* for July 25, of a long series of observations on the assimilation of plants. He finds that when algæ grown in spring water are constantly supplied with fresh carbon dioxide, instead of fresh water, as the experiment is usually performed, they give off less and less oxygen and finally none at all; also, that if spring water is first boiled, then impregnated with carbon dioxide, the algæ will give off little or no oxygen. He therefore concludes that green plants require something else beside carbon dioxide and sunlight in order that they may evolve oxygen, and that something he finds to be binoxide of hydrogen. The reaction is theoretically something like this:  $\text{CO}_2 + \text{HO}_2 = \text{CHO} + \text{O}_3$ , or  $\text{CHO}_2 + \text{O}_2$ , or  $\text{CHO}_3 + \text{O}$ , or, again,  $2\text{CO}_2 + \text{HO}_2 = \text{C}_2\text{HO}_3 + \text{O}_3$ , etc. The conclusion if sustained is very important.

IT IS NOW PRETTY well settled that the cells of plants are not the units, separate and individual, out of which they are built. Since the discovery of the sieve tubes by Hartig in 1837, and more especially since the demonstration of the perforations in their septa and the continuity of the protoplasm through these perforations, botanists have been prepared to have the idea of protoplasmic continuity more extended. Recent investigations seem to leave little doubt that the protoplasm of plants is continuous throughout, and instead of a multitude of cells combined into a tissue we have protoplasm cut up into compartments by partition walls in various planes. These partition walls serve for mechanical support and permit a more perfect physiological division of labor. In some cases the wall plays the more important part; in others, the protoplasm. The continuity is established by means of threads of protoplasm reaching through the cell-wall. These threads are not the size of the pits which exist in almost all walls, but much smaller. In all cases the pits seem to be closed by a membrane, through which there are a few (3-5) perforations. Through these perforations run moniliform threads of protoplasm, usually curved and containing a few granules. Russow believes that these threads are coetaneous with the cell-wall, deriving them from the threads which extend between the daughter-nuclei when the cell is undergoing division, the increase in number being due to the longitudinal splitting and the formation of intervening cellulose. Gardiner holds that ordinarily the function of these threads is to permit the transmission of impulses from one part of the plant to another; while in endosperm cells and sieve tubes they "make possible a transference of solid materials."